

# Handheld Electronics EHM Sensor Probe for Determination of Remaining Useful Life, Phase II

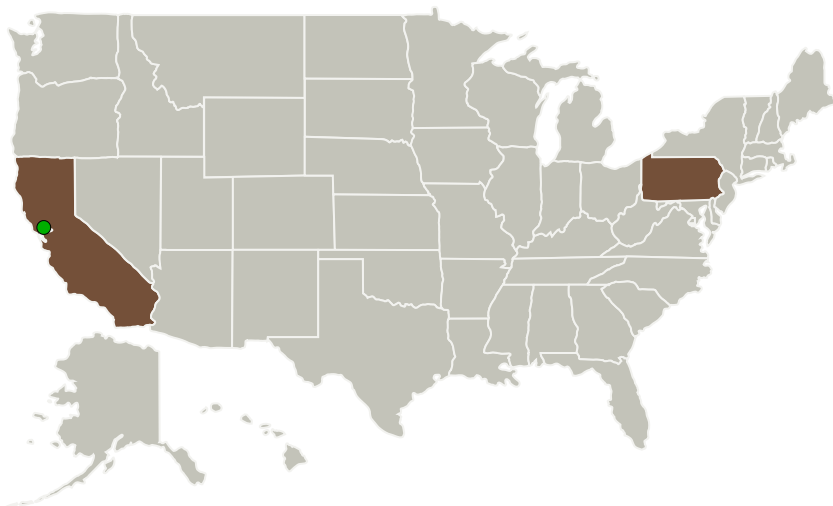
Completed Technology Project (2015 - 2018)



## Project Introduction

National Aeronautical and Space Administration's (NASA) Aviation Safety Program "seeks capabilities furthering the practice of proactive safety management." One area of particular interest is the prognostication of Remaining Useful Life (RUL) of avionic systems. In response, Nokomis is proposing to develop an Electronic Health Monitoring (EHM) Sensor Unit which would be able provide accurate estimates of the RUL of avionic systems. This sensor module would identify changes in the unintended Radio Frequency (RF) emissions of various flight-system electronic components to determine the current health state and predict the future reliability of the scanned system. Designed as a handheld unit which would allow for system scans of components while installed in the aircraft, the EHM Sensor Unit would be capable of scanning and returning real-time RUL prediction results. This real-time capability would allow for frequent maintenance monitoring, including during the brief turnaround periods experienced at the gate. This technology would allow NASA, as well as flight-system and aviation maintenance providers, to better monitor the electronic health of these critical avionic components, as well as better predict their future lifespan, allowing for systems to be repaired or replaced prior to an unanticipated failure.

## Primary U.S. Work Locations and Key Partners



Handheld Electronics EHM  
Sensor Probe for Determination  
of Remaining Useful Life, Phase  
II

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Images	3
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

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Organizations Performing Work	Role	Type	Location
Nokomis, Inc.	Lead Organization	Industry	Charleroi, Pennsylvania
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Pennsylvania

## Project Transitions

 **May 2015:** Project Start

 **March 2018:** Closed out

**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/137539>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Nokomis, Inc.

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

William A Davis

**Co-Investigator:**

William J Davis

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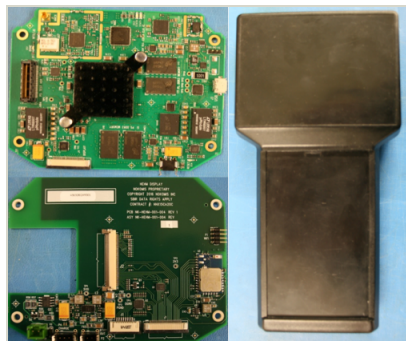
## Images



### Briefing Chart

Handheld Electronics EHM Sensor Probe for Determination of Remaining Useful Life Briefing Chart

(<https://techport.nasa.gov/image/136048>)



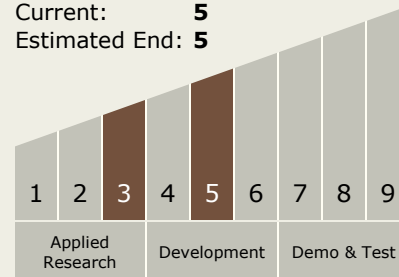
### Final Summary Chart Image

Handheld Electronics EHM Sensor Probe for Determination of Remaining Useful Life, Phase II Project Image

(<https://techport.nasa.gov/image/131289>)

## Technology Maturity (TRL)

Start: 3  
Current: 5  
Estimated End: 5



## Technology Areas

### Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.5 Mission Architecture, Systems Analysis and Concept Development
  - TX11.5.1 Tools and Methodologies for Defining Mission Architectures or Mission Design

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System